

ASTP (USSR) MISSION SR132/1
Time: 23:44 CDT, 112:24 GET
7/19/75

KIO (Moscow MCC. Moscow time is 7 hours 42 minutes - 44 minutes. Soyuz spacecraft is carrying out its 77th orbit above the Earth. Flight time is 112.50 minutes. In the last communication through the Sergei Korolev tracking ship we received the telemetric data as follows concerning the condition of the onboard systems: pressure is 646 in the descent vehicle, temperature in the descent vehicle is 17.8 degrees Celsius. Partial pressure of oxygen is 191-1/2 min. [Partial pressure] of nitrogen [sic] [carbon dioxide] is 747 mm. 745 is the pressure in the orbital module and 19 degrees Celsius in the orbital module. In 3 minutes the Soyuz spacecraft will come into AOS of the station Ussurisk. The crew continues sleep and will sleep until 9 o'clock Moscow time. This is Moscow MCC. Out.)

KIO (This is Moscow MCC. Moscow time is 8 hours and 22 minutes. Twenty minutes ago the communications session was over in the 77th orbit. The program of communication was fully completed. Decisions for the 78th orbit were taken and were taken to be according to plan. The Soyuz is now in the equatorial region over the body of water called the Pacific Ocean. The next communication will take place when the spacecraft comes into the AOS of the Ulan-Ude - of the tracking station at 9 hours 22 minutes Moscow time. This is Moscow MCC. Out.)

KIO (Soviet Mission Control. Moscow time, 8:46. Flight time, 113:24. Spacecraft Soyuz is completing its 76th orbit around the Earth. At this time it's going out of the shaded portion of the Earth and is over the Pacific - Atlantic Ocean going towards the equator. Upon awakening, the crew will have breakfast and will check their systems. They will do their morning chores [sic] [personal hygiene]. Comrade Leonov will check the systems while Kubasov, flight engineer, will communicate with Mission Control. After the comm session they will make an orientation maneuver towards the Earth. Flight engineer will conduct preparation for an experiment for photographing the Earth. The 79th orbit, the crew will continue - will continue with the joint experiments, Zone-Forming Fungi. On the 80th orbit a further check on the systems and further manual orientation. After second breakfast or lunch they will do a solar spin and will do another experiment, the photographing of the sunrise. On the 83rd they will have dinner and will summarize their work and make preparations for the final stages of the flight. On the 84th and the following two orbits the crew will be busy preparing - installing equipment that they will take with them. Next comm session will be through Eupatoria and the two spacecraft, two - rather, tracking ships Korolev and Gagarin. After that they will have evening chores and prepare for sleep. This is Soviet Mission Control Center.)

KIO (Soviet Mission Control. Moscow time, 9:05. Soyuz 19 is completing 77th orbit. At this time it's over the equator in the Indian Ocean. According to the program of the flight, the crew will be waking up. The following are the calculated parameters for the orbit: maximum height - 219.37; minimum height - 216; period of orbit - 88.80; inclination to the

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equator - 51.78 degrees. This orbit there will be a following communication through the tracking ship - tracking ships. Until AOS at Ulan-Ude, Ussurisk, and Petropavlovsk-Kamchatsky - 13 minutes. The following is included in this comm session: communication with Mission Control - Moscow, the reception of telemetry data - trajectory data. This was Soviet Mission Control, Moscow.)

END OF TAPE

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KIO (Soviet Mission Control Center. In 2 minutes spacecraft Soyuz will obtain AOS with Ulan-Ude, Ussurisk, Petropavlovsk-Kamchatsky.)
CC-M Soyuz, Moscow. Soyuz, Moscow. Soyuz, Moscow.
USSR On the line.
CC-M (Soyuz, this is Moscow. Okay, I can hear you well. Soyuz, good morning. How are you?)
USSR (Good morning. I can hear you well.)
CC-M (Roger. Do you have the switch SEPARATION OF CHANNELS?)
USSR (No.)
CC-M (Okay. Please, put it on - turn it on or otherwise we'll wake up Apollo crew.)
USSR (We just turned it on.)
CC-M (Roger. How's everything going? How do you feel?)
USSR (Everything's going well. We feel good. We just got up. We just looked at some of the systems but we did not make a complete check.)
CC-M (Soyuz, Moscow. Put the time back.)
USSR (What time did you say? Okay.)
CC-M (This is referring to Delta-V update.)
USSR (When will you give me the time?)
CC-M (I'll give you the time later.)
CC-M (How did you sleep?)
USSR (We slept very well, thank you. Just woke up.)
CC-M (About how much did you sleep? How long did you sleep?)
USSR (From 2 o'clock until 9 - 10.)
CC-M (Roger.)
USSR (Okay. I put it back to zero.)
CC-M (Thank you. Soyuz 1 - -)
CC-M (Soyuz 2, do you have your medical belt on? Okay. Get ready to take a pad up. On page 6, 7.)
USSR (I'm ready.)
CC-M (Number 67:180, time of 10 40 00 time of program 12 19 00; time of burns 13 29 00; time of the burn - 4 seconds. Update Delta-V 116.8; time of input 09 26 30. How did you read me?)
USSR (Confirming the data.)
CC-M (Roger, you copied correctly.)
CC-M (Soyuz. Apollo crew will sleep through until 12:30. Therefore work with the separation of channels ON.)
USSR (Roger. We copy. The radiogram, pad 5?)
CC-M (Okay. Here it comes. Okay. We have 1 second up to the settings should be turned on.)
USSR (Roger.)
CC-M (Okay. Here's pad 5. Page 6 13. 6 13 - 6 14. Page 6 13. That's the beginning of it.)
USSR (I don't have a pad on this one.)
CC-M (It's not a pad; it's an experiment AC-1, AS-1.)
USSR (When do I turn the TV camera on?)
CC-M (10 50 00. Turn off the TV camera 11 02 00. That - I'm sorry - that was a movie camera. Roger. You copied correctly. How are you putting the settings?)

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USSR (The settings are going in well.)
CC-M (Everything down here is - everything going well. We are
very impressed with your experiments. We thank you for your work.)
USSR (How's the weather like in Moscow?)
CC-M (Today in the morning, it's exceptionally beautiful. The
weather's exceptionally beautiful. Not a single cloud.)
USSR (Okay. I have put in the - I just completed the entry of
settings.)
CC-M (Roger. Try to make correction - -) (Garble)
SFE (What? What should I correct?)
CC-M (Not you, Soyuz 2. Soyuz 1. We ll have a time check.)
USSR (Okay.)
CC-M (40 seconds left, 30 seconds left, 20 seconds, 15 - -)

END OF TAPE

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USSR (093100.)
CC-M (Okay. We have the time. Okay, write the 4 scheduled comm sessions.)
USSR (Ready.)
CC-M (10:40-11:06, Moscow - from Moscow 10:47-11:06. That was the 8th and I'll give you the ninth session.)
USSR (Ready for pad 23.)
CC-M (Next time we'll give it to you.)
USSR (Okay.)
SFE Moscow, this is Soyuz 2. (Garble) the OM pressure - 550. Everything's in order on Soyuz.)
CC-M (750 - the OM pressure. Telemetry confirms that. This comm session comes to an end. Keep up the good spirit.)
USSR (Okay, till the next comm - until the next meeting.)
KIO (Soyuz Mission Control. Moscow time - 9:53; GET - 114:37. Soyuz 19 is in its 78th orbit around the Earth. At 9 am the cosmonauts awoke. After morning toilet activities they are checking the Soyuz systems and preparing for scheduled comm with Mission Control, Moscow. In the past - preceeding comm session, they informed the Center their health is good, their feelings are perfect. Telemetry data provided indicated that everything was going normal. No further commentary on the health of the cosmonauts. The program for the next orbit is nominal. Soyuz commander with manual orientation will align the ship to conduct a test photographing the Sun. They will be aiming at the horizon. Inclination will be 105. After this it will go in automatic mode. They will photograph the infrared vertical. They can keep the ships in this inclination with an error of 1.5 degrees. At this time, while the commander is maneuvering the ship, flight engineer will prepare the photographic equipment to photograph the Earth. The aim of this experiment is to test various layers of both the upper atmosphere. The camera will be turned on automatically. The camera will be put in the window. Flight engineer will be looking through the window himself and changing the position of the camera and (garble) the cloud formation which he has to bypass. This was Soviet Mission Control Center.)
KIO (This is Moscow Press Center. Good morning. We're beginning our scheduled briefing. This briefing will have participants: Tsibin; Seromyatnikov; flight engineer, backup crew, Andseev; FE Backup Ivanchenkov; Dr. Kurt, academician, Academy of Sciences, Director of the UVH experiment, the Soviet side; Gennady Nicholsky, Doctor of Physics, Academy of Sciences, Solar Eclipse Experiment Director, the Soviet side; and comrade Malkov ...)

END OF TAPE

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KIO (- - experiment Director of the Soviet side and Comrade Malkov member from the Metallurgy Institute, the Multi-Purpose Furnace, Director of the Soviet side. I'll give you some data of the flight. All the preparations for the undocking were begun on the 67th orbit. Cosmonauts did the orientation maneuver, went into the descent vehicle, prepared the docking assemblies for active undocking. At 18:26 Moscow time the crew of Soyuz 19 performed the final undocking of the ships in 20 minutes. The astronauts - the cosmonauts went into the orbital module, doffed the PGA's. Then, dried them. In 18:48 they began the UVA experiment, opening the reflectors (garble) N_2 and O_2 were measured in the upper stratos of the atmosphere. The first was conducted at 150 using the reflector in the OM. The second measurement was completed using the backup reflector as per American request, and the Soyuz performed the rotations on course. The experiment was conducted successfully. Flight engineer Kubasov carried out photographing of the Apollo, and photographed the effects of light around the Apollo. At 21 hours 36 minutes the final separation of the spacecraft Apollo and Soyuz began, and the crews carried out measurement of the distance between the spacecraft. According to the program on the 71st revolution spacecraft commander stabilized the spacecraft in rotation. Until 21:45. The cosmonauts conducted the biological experiments on the Zone-Forming Fungi and the Growth of Micro-organisms. After supper and evening toilet until 9 o'clock the cosmonauts rested. the cosmonauts felt just fine. And now I would like to turn it over to Sergei - Sergei Pavlovich.)

PAVLOVICH (Yesterday the joint work and the joint flight of Apollo and Soyuz were successfully completed. This is the preflight program that we drew up together with the American side to take care of any unforeseen events. This program is onboard each of the ships and I can say - with - I'm very happy to say that we were - none of the crews used this program. But that does not mean that there were no unforeseen trouble. Everything went successfully, but there were a few defects both on the Apollo and the Soyuz. However, by yesterday when the experiments were completed there were practically no problems remaining.)

CC-M (Soyuz, Moscow. I hear you well. What is your orientation?)

USSR (Orientation is okay. We are in orbital orientation mode.)

CC-M (Roger.)

USSR (We are ready to receive.)

USSR (Just a minute. Let us start the experiment.)

CC-M (Yes, yes.)

USSR (Yes, began the experiment.)

CC-M (Roger.)

USSR (What do you want?)

CC-M (One hundred and third.)

USSR (Yes. One hundred and third.)

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CC-M (Time 9:45:1 10 seconds. 203, 6, 300, 7, 16-0, 8, 13
11th, 215, 12, 15, 27, 16, 0, 7, 10, 19, 19, 20, 20, 21, 6, 22nd, 7, 60,
25, 3, 20, 26, 3, 20, 27, 165, 28. How did you copy. Over.)
USSR (We have got your information. Thank you.)
CC-M (I need a take 14th and then 23rd and 2nd pads.)
USSR (Just a minute.)
CC-M Moscow voice, Houston voice on GY-8. (English)
CC-H Moscow voice. Houston voice. GY-8. (English)
USSR (14, I'm ready for number 14.)
CC-M (69th. Thrust 0.71; burn 5 seconds; orbit 0,80,20,
0 8, 0 9, 0 98, 89th, 13, 28, 51, 0 99. 81st, 15, 0 16, 0 99. 33rd, 16,
33, 0 6, 0 98, 84th, 18, 0, 0, 51, 0 99.)

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USSR (- - 84th, 180051, 099. 84th, 192125, 099. Ed is confirming those figures. On the 80th, 132851.)
CC-M (Roger. You've received it properly. ... telemetry and data recordings are good.)
USSR (... third. I'm ready.)
CC-M (80th, 120549. Moscow, 1214, 1237. Shadow, 1238, 1314. 81st, 133434. Moscow 1344, 1407. Shadow 1407, 1443. 82nd, 150319, Moscow 1515, 1538. Shadow, 15.36, 1513. 83rd, 163204. Moscow, 1647, 1703. Shadow 1705, 1741. 84th 150047, Moscow 1821, 1834. Shadow 1833, 1910. 85th, 192932. The Korolev - -)
MCC-H Gagarin. (English)
CC-M (1930. Korolev, 1930, 1935. Moscow, 1953, 2003. Shadow 2002, 2039. 86th, 205816. Gagarin 2110, 2117. Korolev 2101, 2108. Moscow 2126, 2133. Shadow 2131, 2207. 87th, that's enough for awhile.)
USSR (Okay. I can receive pad 2.)
CC-M (22nd, 71. Latitude, 204. Period, 88.80. Orbit, 074.4.
Time on, 11:15:01. Correction, that was longitude that figure, not latitude.)
USSR (The experiment will be finished soon.)
CC-M (Yes, that's why I said so. About the television camera, can you clear it up?)
USSR (When should I start it? Just a minute.)
CC-M (18:02. TV at 18:02. That's page 165.)
USSR (I concluded the experiment.)
CC-M (Roger.)
USSR (18:02?)
CC-M (Yes, 18:02.)
USSR (- - commentary with the control center?)
CC-M (Yes, yes. Make it more clear on the next orbit. Let's continue. Are you ready? 87th, 222700. Gagarin, 2243, 2250.)
SPKR (Hard, complicated work - -)
CC-M (Shadow - -)
SPKR (which not performed time to time, but is a 24-hour process.)
CC-M (- - that's 2336)
SPKR (A space flight is a long and complicated process which is not carried out from time to time; it is carried out 24 hours around the clock.)
CC-M (2350 - 43, 44. Gagarin, 0016, 0023.)
SPKR ((Garble) after all (garble) you can always expect the unexpected.)
CC-M (Shadow 0029, 0105. 89th, 012428 - -)
SPKR (Therefore the personnel in Houston and in Moscow - -)
CC-M (Gagarin, 0148, 0156 - -)
SPKR (have drawn up a (garble) - -)
CC-M (0157, 0240. 90th - -)

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SPKR (- - that insures the opportunity of rapidly and in a qualified manner dealing with any unforeseen problems - -)
CC-M (- - 025311; Gagarin, 0321, 0327. Shadow 0326, 0402. 91st - -)
SPKR (- - when we were drawing up this necessary documentation in Houston for such coordinated action - -)
CC-M (042155. Shadow 0455, 0531. 92nd - -)
SPKR (We outlined precisely the exchange of information between the two center's concerning normal parts of the flight and concerning any unforeseen events.)
CC-M (055037. Korolev 0626, 0633. Moscow 0601, 0609. Shadow, 0624, 0700.)
SPKR (And during our training periods in '74 and '75 all this coordinated action was carefully worked out.)
CC-M (93rd, 071920. Moscow, 0729, 0742. Shadow, 0752, 0829.)
SPKR (And I'm highly pleased to inform you today that concerning this coordinated action (garble) Moscow, it will function very well.)
CC-M (94th, 084842 - -)
SPKR (In any situation we rapidly found a common tongue - -)
CC-M (Moscow, 0900, 0914.)
SPKR (- - and, of course, we took the necessary (garble).)
CC-M (Shadow, 0921, 0958. 95th, 101645 - -)
SPKR (Would you kindly tell us who was the head of the flight shift in Houston yesterday, and could you give us a little more (garble) qualities of the crew?)
CC-M (Moscow 1026, 1046. Shadow 1050, 1126. 96th, 114527. Moscow 1154, 1217. Shadow, 1219, 1255. 97th, 131409 - -)
SPKR (Yesterday the first shift was under the command of Dr. Peter Frank.)
CC-M (Moscow, 1324, 1347. Shadow 1348, 1424. Did you copy? Did you copy, Soyuz?)
SPKR (You apparently are interested in just how the crews behaved during these extreme and tense moments. I'd like to remind you that the Soyuz crew was in the descent module at that time, in the descent - -)

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SPKR (I'd like to remind you that the Soyuz crew was in it's descent module at that time in the descent chairs - or what ever you call it. And the Apollo crew was also in the spacesuits in the command module. During such situations the crews in Apollo and in Soyuz are specially strapped into their positions. And the same strapping system is used in splashdown or landing. The shock absorbers function very well in these chairs. Therefore, in this situation the crews did not feel too much of a shock - physical shock. Judging by what we have heard from Kubasov at that moment, he just spoke of a slight pitch in movement, but of no particular shock. And for them the process of the docking itself was not very different from ...)

QUERY (Hungarian radio. At what time can we say that the Soviet crew is ready for descent and at approximately what speed will the ship hit the Earth?)

ANSWER (That's approximately 1-1/2 hours prior to landing. In normal conditions the speed of touchdown is not very high. From 0 to a few 10's of centimeters a second.)

QUERY (Many journalist were interested yesterday to hear what the cosmonauts and astronauts said during yesterday's undocking.)

ANSWER (Yesterday I asked to hear the tape recording in order to get these words. Regretfully, purely functional language. Leonov says "Undocking." Stafford said in Russian "I understand you. I read you.")

QUERY (Could you tell us whether or not the photography of the eclipse of the Sun was as proposed? Do you have that information?)

INTERP (The question will be answered by Gennady Nicholski.)

NICHOLSKI (According to preliminary information the solar eclipse photography physically was carried out very well. As for the rest, we can only say when we develop all the film.)

QUERY (Could you tell us what the stress is on the crews during descent in the Soyuz and the Apollo ship?)

ANS (It is very small. On both ships. It's no more than the stress that a pilot receives in maneuvering a heavy plane. Approximately 4g's. At the maximum.)

INTERP (Two more questions.)

QUERY (The Polish ... television correspondent says that because there are many proposals on Polish television to call this - the orbit of this joint flight - Peace Orbit, and to continue calling, Peace Orbit, any joint flights carried out in the future. Could you tell us what your ideas are on this? The Soviet Mission Control Center and also yours personally.)

ANS (I think this a very good proposal and truly I agree that this orbit where the Apollo and Soyuz met could be called Peace Orbit. Regretfully, I have to inform you that in future joint flights we will not always be use - be able to use the same orbit. But however, in future, even though the orbits may have different parameters, let them all be called Peace Orbit, because the idea behind them is identical. The idea is peace and good cooperation between all nations of the world.)

INTERP (One more question.)

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QUERY (What would have happened -)

INTERP (Who are you please?)

QUERY Albert Ashalvain, North American Newspaper Alliance.

What would have happened if the two ships were unable to undock? Was there ever such a possibility? Is there such a possibility? (English)

ANS (I already spoke with the fact that we attached a great deal of the significance to the undocking maneuver. And in designing our system we foresaw this problem. And that's why we designed three absolutely autonomous systems of undocking.)

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ANS (- - And that's why we designed 3 absolutely autonomous systems of undocking. The usual standards are two modes in order to guarantee functioning. We had three modes, or 3 autonomouses. All these pads in red foresee various variations of undocking. Approximately five of them foresee trouble in undocking. The possibility of undocking - of not undocking after all variations have been utilized is highly - almost impossible. I said there are 3 autonomous systems, but each system in itself has variations. He spoke five combinations and we could most likely get even more. So the guarantee of undocking is as high as a guarantee of a piece of dry wood will start burning in a hot furnace. The next briefing is today at 6 o'clock - -)

KIO (Moscow time is 11:35. The flight of Soyuz 19 continues, right now the spacecraft is completing it's 79th orbit. It's located over the Pacific Ocean. According to the telemetry received during the last comm session, onboard systems of the ships - spacecraft are okay. The crew is in good shape. The pressure in the descent vehicle is 746 millimeters, and the OM is 735 - 738; the temperature of the air in the descent vehicle is 18, and the OM 19.67. Right now, according to the flight plan, the cosmonauts must conduct a regular operations with the experiments micro-organism growth, and the Soviet/American experiment on Zone-Forming Fungi. They are taking dead-end photographs on the rhythm device and until the next regularly conducted comm session this is MCC. Until this next session, 33 minutes from then. This is Moscow Control Center.)

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KIO (This is Moscow Control Center, Moscow time is 11:50. Spacecraft Soyuz 19 is now located over the Atlantic Ocean. In orbital orientation mode. According to the program the cosmonauts should be solving regular operations connected with experiments. Spacegram - spacecraft commander should be conducting observations of - on experiment of the growth of micro-organisms. Kubasov should be photographing the rhythm device. And conducting observations on the Soviet/American experiment on Zone-Forming Fungi. Until the next regularly scheduled comm session which will take place in 23 minutes. The Soyuz 19 crew - they will begin preparing for the next comm session. Okay. The spacecraft crew must conduct a test of the deorbit controls, and the next comm session will have a commentary from the Moscow Control Center.)

KIO (Moscow Control Center. The 20th of July 1975. The spacecraft Soyuz 19 is completing it's 79th orbit and now is continuing flying - approaching the Atlantic Coast of Africa. Until the next comm session remain 14 minutes. At the present time, according to the program of the flight, the crew of Soyuz 19 should be conducting test in the Soviet spacecraft, and checking the automatic elements for retrofire and deorbit. In preparing for deorbit, the spacecraft commander Leonov orients spacecraft to Earth using the infrared sensor. In giving the command for deorbit, spacecraft orientation is conducted. The command is given either by the Control Center or by the crew. After giving the command, the automatic elements of the spacecraft conduct orientation, the crew monitors the orientation and the working of the elements. The retrostarter - - the conclusion of the test maneuver the crew will be getting ready for the next comm session of comm center. In monitoring their call - the parameters of the orbit for the upcoming immediate orbit: apogee 215.01, 215.8. 88.79. And the inclination is 51.78. This is Moscow Control.)

MCC-H (This is the interpreter, there's a correction on that apogee was 292.)

KIO (This is Moscow Control Center. In a minute Soyuz 19 will enter the zone of visibility of the tracking station in Tbilisi.)

CC-M (Soyuz, this is Moscow.)

CC-M (Soyuz, this is Moscow.)

CC-M (Soyuz, Moscow.)

CC-M (Soyuz, this is Moscow calling.)

SFE (Moscow, this is Soyuz 2.)

CC-M (Soyuz 2, I hear you very well, how do you read me?)

SFE (We hear you excellent.)

CC-M (Roger.)

CC-M (How's the orientation going?)

SFE (It's going normally. Everything is normal.)

CC-M (Can we get the globus ready in this orbit - - globus correction ready? Okay.)

CC-M (Check the radiogram without pad.)

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SFE (Get it.)
CC-M (72, number 72. On the 81st rev after the maneuver coming out of shadow. After the test, yes.)
CC-M (Perform a solar spin three degrees per second rotation.)
CC-M (- - Yes, I confirm. Yes you - -. Next number 73.)
CC-M (On the 80th rev, set up telecamera number 1 in the descent vehicle on that TA4.)
CC-M (The data for the TV 18 2.)
CC-M (Use the data for - -)

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CC-M (... for the TV. 18 2. Use the data for 18 2 and the notes and note 1 on page 166. Just a minute. Yes, a minute until the program is on. Turned on.)
USSR (Okay now, program. The times exact. Yes, according to our clock. The exact time. Copy.)
CC-M (Okay. Wait a second. We'll check it.)
USSR (This first minute, according to our clock exactly.)
CC-M (Copy form 2. Pad 2. Longitude 181. The period, 88.8. 079.4 is the orbit. Time on, 12:43:49.)
USSR (Roger. Copy. Okay. We're ready to copy 73rd. Without pad.)
CC-M (Okay. Repeating the data on that TV session. Instead of TV session, there will be an interview with the TV commentator at 13:15 after TV 1. Don't remove the camera.)
USSR (Copied.)
CC-M (Okay. Number 74. Tried to get comm with Apollo - tried to establish comm with Apollo on simplex FM using antenna A1. Simplex FM, antenna A1. Over at Vanguard. The time at 14:23.)
CC-M (How did you copy?)
USSR (We copied FM antenna A1 at - -)
CC-M (Yes, you copied correctly. Yes, we have a question for you.)
CC-M (Did you copy?)
USSR (Yes, we copied.)
CC-M (Okay.)
USSR (Yes. Okay. We'll have comm through Vanguard at 13:51 through 13:57.)
USSR (Then we'll be interested in the course of orientation.)
USSR (At Ascension, ASN 13 25 13 30. Just a minute. 13 25 13 30 over Ascension.)
CC-M (There the engines will be - will have - will have worked.)
CC-M (Regular comm session at 13:44 to 14:08.)
USSR (Roger.)
USSR (12 27 1. Copied.)

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SFE (Moscow, this is Soyuz 2.)
CC-M (Go ahead.)
SFE (14th minute of the program. Everything's going okay.)
CC-M (Roger.)
CC-M (Soyuz, this is Moscow. 7 minutes until the globe
correction. The comm session is coming to an end. Wish you a successful
flight.)
SFE (We copy.)
KIO (The previous announcement was of a play back from the
Moscow Control Center - Press Center.)
KIO (- - the day 5 period of Salyut. The preceeding
orbit, there was a comm session with MCC. The crews informed MCC that
all the systems are working well, that they're feeling well - the crew
is feeling well. Mission Control, Moscow has done a number of radiograms
regarding correction of the globe, a number of messages, namely at about
14:23, to establish comm session with Apollo. Likewise a number of
radiograms for controls based on the telemetry data - - 744.8 in the
orbital module; 739 millimeters. Temperature in the descent vehicle 18.6.
The orbital module 18.8 Centigrade. According to the program the crew
of the Soyuz was making a final check in preparation to test the orbiting
systems. This operation the crew will pump out condensation. So, in
summary, the program for orbit 80 everything has been completed. The
mode is or - The spaceship is flying in the orbital orientation. This
was Soviet Mission Control, Moscow.)
KIO (This is Moscow Control Center. In a minute the
spacecraft Soyuz 19 will enter the AOS of Ascension Island.)
CC-M (Soyuz, this is Moscow.)
SFE (Soyuz 2. Go ahead.)
CC-M (Soyuz, how did the engines work? I'm Moscow.)
SFE (The engines turned on exactly on time and worked
for 4 seconds.)
CC-M (Soyuz, Moscow. Copied. Over.)
SFE (We are monitoring the system right now.)
CC-M (Copied.)
SFE (12:34, we'll be turning off the program.)
CC-M (Roger.)
SFE (13:34.)
SFE (Voltage is 25 right now.)
SFE (We're going to continue with our - -)
CC-M (Okay at 13:44 - there'll be comm with Moscow.)

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ASTP (USSR) MISSION SR142/1
Time: 05:36 CDT, 118:14 GET
7/20/75

KIO (This is Moscow Control Center. Moscow time is 13:35. The 41st orbit of the Earth has begun by Soyuz 19. Right now the spacecraft is located over Africa. In 8 minutes, regular comm session with Moscow Control Center will begin, when the spacecraft enters the zone of the Eupatoria station. The parameters right now of the orbit - for the 81st orbit; apogee, 219.15; perigee, 211.9. The period is 88.74; inclination, 51.78. The program of activities include for the 81st orbit, upon entering AOS of the station of - stations in the Soviet Union, is supposed to conduct a TV session from onboard the spacecraft. At the end of this comm session, Alexey Leonov and Valeriy Kubasov will have breakfast. And at the end of the 81st rev, the crew of Soyuz will conduct ... orientation of spacecraft toward the Sun, and will be rotating with an angular velocity of 3 degrees per second. That will be the end of the activities for that orbit. Until the beginning of comm session with MCC, Moscow, there are 6 minutes. This is Moscow Control Center.)

KIO (This is the Moscow Control Center. In a minute the spacecraft Soyuz 19 will enter the AOS of the ground station at Eupatoria.)

CC-H (Soyuz, Moscow. Soyuz, this is Moscow. Soyuz, this is Moscow. How do you read me? Soyuz, this is Moscow. How do you read me. Soyuz, Soyuz, this is Moscow. Soyuz, this is Moscow. Soyuz, Soyuz, this is Moscow. Soyuz, this is Moscow. How do you read me?)

SCDR (We can hear you fine.)

CC-M (Good day, good friends. Everyone sends you their greetings here.)

SCDR (Greetings to you, too.)

CC-M (Okay. We want to hear report about your predescent test.)

SCDR (We finished everything. Everything was worked out according to program. The orientation was good. Okay. This was good. I'm told that this would interp - Okay, I put the program in on time. The engine was started on time. 13:34 we turned off the program. Okay, the inertial attitude program is now working. We really have no comments regarding the tests.)

CC-M (Roger.)

SCDR (Okay. We will continue this time.)

CC-M (Thank you. Continue.)

SCDR (We will do a solar spin right now as you requested.

Thank you.)

CC-M (Did you make a correction of the globe?)

USSR (Yes, we did it.)

CC-M (Oh, everything is fine, then.)

CC-M (According to our data, everything onboard seems

nominal. Let's continue with nominal program as scheduled.)

SFE (Should we turn on the TV camera?)

CC-M (Yes.)

ASTP (USSR) MISSION SR142/2
Time: 05:36 CDT, 118:14 GET
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SFE (Okay, the commander went to fetch it and he will bring it
back and turn it on.)

CC-M (But - hurry up because the time is approaching. He's got
40 seconds left.)

CC-M (Put it on TA4.)

SCDR (It's on TA4.)

CC-M (Roger.)

CC-M (It's time.)

CC-M (Valeriy, close the window.)

CC-M (Soyuz 2, how do you read me?)

SFE (Okay, I hear you well. I was getting the bracket ready.)

CC-M (Okay. Close the window. Close the shade on the window.

Valeriy, come closer to the window and bring the commander closer to you. Just
1 second.)

END OF TAPE

ASTP (USSR) MISSION SR143/1
Time: 05:51 CDT, 118:29 GET
7/20/75

USSR (Okay. How is the picture?)
CC-M (Come closer to the window.)
CC-M (A little bit more. That's good. Okay, get the commander closer to you. That's good. Okay. A little bit lower. That's good, that's good. Okay. I'm giving the word to the Soviet television.)

USSR (We have to clean up something first.)

CC-M (Soyuz 1, Soyuz 2. This is Moscow, do you hear us?)

SFE (This is Soyuz 2. I hear you well.)

MCC-M (Dear cosmonauts, during your entire flight, on Soviet TV and radio, we received a tremendous number of telegrams, not only from our people, but from the people abroad about your fine work here in space. Thank you for the beautiful accomplishment of the joint space achievement - the joint work.)

USSR (Thank you very much for your greetings - for your warm words. I'd like to say a few words. Today, everything is going smoothly according to the program that we worked out prior to our flight, everything has gone well from second to second, every - We're feeling good - we have a good - we're in good spirits. I guess the most important aspects of our flight were the docking, the joint activities, the second docking, the undocking, and the fulfillment of the science experiments. These were a beautiful 2 days up in space. These 2 days of work up here - this was the most important part here in the spaceship Soyuz 19. There was nothing simple about this work. Everything was complicated - complex - complicated, but we performed everything according to program - according to the plan.)

MCC-M (Okay, everything as far as the joint part of the flight is behind you; what do you see lying ahead of you? What are you doing?)

USSR (We just finished work checking the systems. We just turned off the program, and are now continuing - will continue preparations for tomorrow's day. We have one more experiment to conclude. Now we are doing a solar spin in order to energize the batteries.)

MCC-M (What can you tell the public about the active and the passive dockings and how the two are different?)

USSR (Both active and passive docking require tremendous concentration from both crews. There are no simple or insignificant elements in either of the dockings. They are both very significant; both require a great deal of attention. However, when we were passive and the Apollo was active, we were monitoring primarily all of the systems. Okay. And when they were - we were active, we still had to assist them in their approach; we had to watch and monitor all the - monitor all the systems. We did the second active docking according to the plan - reference - using reference point designated on the Earth.)

MCC-M (Thank you very much. Can you show the people something - some of the unofficial gifts that you received from the crew of Apollo?)

USSR (Let me try to find something nearby. Okay. Here it is. See this Apollo-Soyuz. Okay. Here you see this emblem Apollo-Soyuz first docking in space - first international docking in space; you see the names of the crews; you see United States. Okay. Here are the dates of the launch and the deorbiting, or landing.)

ASTP (USSR) MISSION SR143/2
Time: 05:51 CDT, 118:29 GET
7/20/75

MCC-M (Thank you very much for showing us. Okay. What is your impression of being the first cosmonauts to ever see a total solar eclipse?)

USSR (It was a tremendous impression. This is something very unusual, something that we had not - could not even foresee. We watched the Apollo through our window; we showed - we could see the corona, how beautifully it was at this distance, and we could see it very, very distinctly, very clearly. And then we saw the illumination - the reflection from the spacecraft. It was so beautiful, the power so vivid. Nothing like that I've seen on the ground.)

MCC-M (And now that the last day of your flight is approaching, what do you have to say to those who are watching you below?)

USSR (I want to tell them thank you very much for their attention; thank them for their respect that they afforded the crews. I want to assure them that we have done our best, that we will continue to do our best. We thank you for the faith, the responsibility, with which you entrusted us, and we want to thank them, and pass them our greetings - wish them the best of everything in their lives - the best of health.)

MCC-M Thank you very much. Thank you for this first cosmic interview. Everyone here on Earth wishes you the best of everything and a very, very soft landing on our native land. We await you impatiently. On this we also close our TV report.)

CC-M (How do you hear us?)

USSR (I hear you well.)

USSR (Now we are beginning our solar spin.)

CC-M (Roger.)

CC-M (Did you turn off the TV camera, or is it still working?)

USSR (You said 2 minutes. I didn't turn it off, yet. I can see the glare.)

CC-M (You still have some time.)

END OF TAPE

ASTP (USSR) MISSION SR144/1
Time: 06:02 CDT, 118:40 GET
7/19/75

CC-M (Is the ... you?)
USSR (No, no. It's not in our way.)
CC-M (Maybe it's not the camera, but the Sun that is interfering.)
CC-M (Is the control going well? The controls are going well.)
USSR (Yes, we were able to do everything from second to second.)
CC-M (Okay, we can do this at all times.)
USSR (Everything is going well. We're looking at the window. Yeah, I'm watching the sensors, and it indicates that everything is going well.)
CC-M (But can you see through the window? You can see the window?)
USSR (Yes, we can see the window.)
CC-M (Okay. Input 22, voltage 27. Current is 18.)
CC-M (Okay. Repeat the data.)
SCDR (Solar spin input, 22 - below 22; voltage, 27; current is 18.)
CC-M (Roger. Thank you.)
CC-M (One more minute left. I gave you everything I needed to give you. Do you have anything for us?)
USSR (No, everything is normal. At this present time, I really don't have anything to give you.)
CC-M (Okay. Until we meet again next orbit, pleasant, safe flight.)
KIO (This is Soviet Mission Control. Moscow time, 14:15; 81st orbit of Soyuz 19. Soyuz 19 is approaching the equator - the equator over the Pacific Ocean. A couple of minutes ago, there was a regular scheduled comm session with Mission Control Moscow. The comm sessions for orbit 81 are completed. There are no comments regarding this orbit. The crew performed orientation maneuver - performed a solar spin with a speed of 3 degrees per second. During the comm session with Mission Control Moscow, the crew of Soyuz 19 gave interview to Central TV of Soviet Union. The cosmonauts informed Moscow that pre-descent test was completed successfully. Everything was completed according to program. The engine burn was 4 seconds, pre-descent program was turned off on time. According to the telemetry data, the pressure in descent vehicle, 736.6; orbit module, 7 - 736.3; the temperature in descent vehicle, 18.34; in orbital module, 18.20 - 21 - 18.21 degrees Centigrade. At the present time, the cosmonauts, according to the plan of the flight, are about to start their second breakfast or lunch. Until our next comm session with Mission Control, we have - it will be held through tracking ship ... Vanguard - we have left for this AOS, 8 minutes. In this comm session, the crew will try to establish comm with - try to start communication with the crew of Apollo. We have 7-1/2 minutes for this comm session. This was Soviet Mission Control Center.)

END OF TAPE

ASTP (USSR) MISSION SR145/1
Time: 06:50 CDT, 119:28 GET
7/20/75

KIO This is the Soviet Mission Control Center. (Moscow time is 14 hours 50 minutes. Soyuz 19 is now in its 81st revolution of the Earth. The spacecraft are located over the Atlantic seacoast of South America. Soyuz 19 is orientated with its solar batteries towards the Sun. It is rotating with its angular velocity (garble). According to the flight plan, the cosmonauts are having lunch. The menu: Alexey Leonov - cottage cheese and coffee with milk; Valeriy Kubasov is having for lunch puree of cottage cheese and prunes, coffee, milk. Until the next regular comm session with Moscow Control Center, which will take place on the - when the spacecraft is over Eupatoria, starts in ... This is Moscow Control Center.)

CC-M (Soyuz, this is Moscow. How do you read me?)
CC-M (Soyuz, this is Moscow. How do you read me?)
CC-M (Soyuz, this is Moscow. How do you read me? Over.)
CC-M (Soyuz, this is Moscow. How do you read me? Reply for comm.)

CC-M (Soyuz, Soyuz, this is Moscow. How do you read me? Over.)
KIO (This is Moscow Control Center. Moscow time is 15:05. 7 minutes ago on this 81st orbit of Soyuz 19 the spacecraft is now located over the Atlantic coast of Africa. The parameters of the orbit - for the 82nd orbit: apogee, 218.99; perigee, 211.03; and the period, 88.74; and inclination is 51.78. In 9-1/2 minutes, regular comm session with the Control Center and the crew will begin, when the spacecraft has AOS with Eupatoria. According to flight plan, now the cosmonauts should be monitoring the spacecraft systems. At the end of the comm session, the cosmonauts will begin to conduct two experiments: Photographing the sunrise and the fish-egg experiment. And we will inform of the results of these experiments at the next comm session. This is the Moscow Control Center.)

KIO (This is the Moscow Control Center. In a minute the spacecraft Soyuz 19 will enter the - will have AOS with Eupatoria.)

USSR Roger.
CC-M (Soyuz, I hear you. Soyuz, Soyuz, I'm Moscow. I hear you.)
USSR Sicily.
USSR In Sicily now (garble).
USSR Here it is, coming straight here, now leaving.
CC-M (Soyuz, Soyuz, I am Moscow. How do you read?)
SCDR (Right, now it's warm.)
CC-M (Okay.)
SCDR (There are some yachts cruising in the sea. Do you see it?)
SCDR (Huh?)
CC-M (Soyuz, this is Moscow. How do you read?)
CC-M (Soyuz, I'm Moscow.)
SCDR (Moscow, this is Soyuz. I hear you well. How do you hear me?)
CC-M (I hear you excellently.)
CC-M (I heard your conversation there over the Adriatic.)
CC-M (I have for you a radiogram. Pad 5 and one without pad.)

ASTP (USSR) MISSION SRI45/2
Time: 06:50 CDT, 119:28 GET
7/20/75

SCDR (Just a second.)
SCDR (Give us pad 5.)
CC-M (Number 75. Index 5-18. Begin photographing, 16:12:00.)
TKS at 16:17:30. How did you copy?)
SCDR Roger. 9, 5, 18 to 16:12:00. TKS 16:17:30. (Beginning ...)
CC-M (I confirm. You've copied, 75.)
SCDR (We're ready for the pad. Number 76.)
CC-M (On the 83rd rev do TV session 18.3, using TK-1 camera.)
The data for that camera, 18.2. How did you copy?)
SCDR On the 83rd revolution, do TV session 18.3, using camera
TK-1. The installation data for that camera, 18.2 (Confirm, sir.)
CC-M (76, I confirm.)
SCDR (Copy.)
CC-M (Alexey, during that last comm you didn't hook up your - do
you need any advice?)
SCDR (Okay. It's well - we're over the Crimea now. It's very
well visible. Odessa, Yalta, - -)
CC-M (I'm glad to hear you're in such good form.)
USSR So, there is the Tzymlyansky Sea, yes?
USSR Yes, yes.
CC-M (We hear your intercomm.)
SCDR (I don't want to disturb you.) That is because one of us is in
the OM and the other is in the DV.
CC-M We cannot hear you without the PUSH-TO-TALK.

END OF TAPE

ASTP (USSR) MISSION SR146/1
Time: 07:20 CDT, 120:00 GET
7/20/75

CC-M (- - I don't want to disturb you.)
USSR (What kind of recommendations do you have?)
CC-M (I thought you were waiting for them.)
USSR (Naugh, we don't need it.)
CC-M (Okay, I understand.)
USSR (We feel swell. We're in a good mood. Everything is going fine.)
CC-M (I'm glad.)
USSR (Right now we're passing over the Voldads. Well, we can see it well. The weather is clear. Lights are sparkling. Studied geography in school, probably all my life. We made parachute jumps during our training sessions. In the region of Gorkey there is some cloudiness.)
CC-M (Roger.)
USSR (Everytime we come over, some kind of radio station, gives the weather report. The temperature is 97. You can hear it too.)
CC-M (No, we don't hear it. It's going on your report.)
USSR (You're fortunate.)
SCDR (We're passing over the Urals. I hear everything, Valeriy.)
USSR (Do you see the boats fishing down there?)
USSR (Right now passing over my native area, Siberia.)
CC-M (Alexey, did you hear that radio station only the simplex or on duplex 2.)
SCDR (On simplex.)
CC-M (Roger.)
SCDR (It bothered us terribly. It was just terrible.)
CC-M (Usually at this time?)
SCDR (Yes. Always exactly at that time.)
CC-M (Try turning off the simplex FM.)
SCDR (Yes, yes the simplex FM was turned off. And, now I don't hear it.)
SCDR (I'll turn it on again.)
CC-M (Alexey.)
SCDR (Go ahead.)
CC-M (Are you awfully busy?)
CC-M (Can you - ? Oh, I'll - Never mind, later.)
SCDR (What did you want?)
CC-M (It's late.)
CC-M (Turn off the condensating mechanism.)
USSR (4 millimeter)
KIO (This is Mission Control, Moscow. Moscow time is 16:12. Soyuz 19 is now in 82nd orbit of the Earth. According to the flight plan the spacecraft crew should be conducting experiments, photographing the sunrise. Upon entering the Earth's shadow, over the Atlantic - Pacific

ASTP (USSR) MISSION SR146/2
Time: 07:20 CDT, 120:00 GET
7/20/75

Ocean. This photography will take place. This is well known. - - This all takes place at sunrise. - - The reason for the sunup are - in the Earth's atmospheric rays. - - The cosmonauts must photograph the Sun at various altitudes, and the photographs which they will get show the Earth's atmosphere refraction, change in the brightness of the Sun. - - The photography of the Sun's disk will be conducted from the orbital module. - - The exact time of the photography according to telemetry, will be passed on to the Earth over the telemetry system. The photography will be conducted at one five-hundredth of a second. The spacecraft is now approaching the Pacific Ocean coast of South America. On the lighted - over the lighted part of the Earth's surface until the beginning of the Soyuz comm session, which will begin over Eupatoria in 31 minutes. Upon completing the Sun photography experiment, the crew will conduct operations relating to another experiment. This is Moscow Control Center.)

END OF TAPE